

Digital *Samhandling* in Education for the Unforeseen Future

Gila Hammer Furnes¹, Herner Saeverot² and Glenn-Egil Torgersen³

^{1,2}Western Norway University of Applied Sciences; ³Norwegian Defence University College

Abstract: This chapter aims to discuss whether digital interaction (*samhandling*) in education requires a new pedagogy, which, to a greater extent than before, takes into account risks and unforeseen events. The major focus is on digital *samhandling* between teachers and students. Future education should prepare students for a world in which *samhandling* between individuals is predicted to be increasingly digital. At the same time, teachers currently refrain from using digital tools in order to interact pedagogically with students. A “mixed methods” survey of 96 randomly-chosen schoolteachers in primary and secondary schools in Norway shows that the respondents give various reasons for using Learning Management Systems (LMS) to a greater extent for administrative purposes than for pedagogical ones. The main obstacle is that teachers do not know exactly how digital *samhandling* should be facilitated educationally and what the consequences may be for the students and education in general. The conclusion is that the future is unknown, and the unforeseen is partly learned through teachers’ professional judgment. Therefore, “new” pedagogy need not necessarily consist of more educational models and theories of “what works.” Perhaps the “new” pedagogy should be, to a greater extent, based on *samhandling* literacy and problem-based learning?

Keywords: *Samhandling*, digital learning, risk, interaction, learning management systems, teacher education, unforeseen.

Citation: Furnes, G. H., Saeverot, H. & Torgersen, G.-E. (2018). Digital *Samhandling* in Education for the Unforeseen Future. In G.-E. Torgersen (Ed.), *Interaction: ‘Samhandling’ Under Risk. A Step Ahead of the Unforeseen* (pp. 167–186). Oslo: Cappelen Damm Akademisk. DOI: <https://doi.org/10.23865/noasp.36.ch9>

License: CC BY-NC 4.0

Introduction

“The future school” aims to prepare students for a new world, where *samhandling*¹ is crucial for knowledge development (Kunnskapsdepartementet, 2015). In the light of technological development, it is logical to assume that *samhandling* may become increasingly digital in the years to come. The problem is that we do not know exactly how this should be facilitated educationally and what the consequences may be for education in general, although Torgersen and Saeverot (2015) argue that the future, or “unforeseen age”, may require a “new” Pedagogy². This may also apply to the concept of *samhandling*, which in itself is quite complex.

Samhandling has had a vital role in the development of interaction and cooperation mechanisms between individuals and organizations in Norway. *Samhandling* is a Norwegian term that we believe has no exact equivalent in English. Originally, the term was used to describe a seamless interaction between humans and computers. It has developed a broader meaning, often understood as an interaction that includes various factors, such as participation, rationality, cooperation, inclusion, involvement and trust, to name a few (Torgersen & Steiro, 2009; see Chapters 1 and 2). *Samhandling* involves not only interaction between individuals, groups and institutions, but also knowledge-sharing and development. In recent years, *samhandling* in education has become increasingly digital. An important objective for *samhandling* in an educational context is to increase the availability of knowledge and enable more efficiency of learning. However, the concept of *samhandling* is complex and may be perceived differently by various parties.

1 *Samhandling* is a Norwegian term which corresponds roughly to the English “interaction” (Torgersen & Steiro, 2009; see Chapters 1 and 2).

2 ‘Pedagogy’ is perceived here as the Norwegian discipline ‘pedagogikk’, not the Anglo-American term ‘education’. Gert Biesta denotes the following: “[...] the German concept of ‘Pädagogik’ (and the Norwegian concept of ‘pedagogikk’), [...] is an academic discipline in its own right, independent of other disciplines” (Biesta, 2011:189). In the Anglo-American tradition, however, ‘education’ cannot stand on its own, which is why this tradition has introduced such concepts as philosophy of education, psychology of education, sociology of education, history of education, etc.” (Saeverot & Biesta, 2013:178).

Consequently, there may be a further need to define what *samhandling* entails in various situations for different participants. Furthermore, digital *samhandling* presents education and society with practical and ethical challenges, and it may also involve various risks for individuals. This may challenge people's trust and involvement in *samhandling* processes. Replacing face-to-face *samhandling* with digital *samhandling* may also have various implications for the *samhandling* itself and for the students' ability to learn and develop. Moreover, there is a high level of uncertainty as to whether digital *samhandling* in education may lead to various types of threats, for example, risk exposure, digital terrorism, and personal bullying (harassment). Other implications may include unwanted digital surveillance, infiltration, use of false identities and hacking, as well as propaganda and indoctrination, for example, in the form of political manifestos, warning signs prior to acts of terrorism and ideological articles from political and military situations. Another type of risk may also occur to a greater extent than before; academic learning may be different to what the education programs have envisaged concerning the curriculum, as digital *samhandling* during the learning process may lead to knowledge-sharing and learning with parties who have other motives and insights than the designations of the curriculum. The question is, should this be seen as an advantage or disadvantage for learning and development? This, in turn, raises the question about the need for control versus freedom, when it comes to using digital and social media concerning academic learning. Future education should, therefore, prepare students to a greater extent for digital *samhandling*. The problem is that we do not know exactly how this should be facilitated educationally and what the consequences may be for education in general. In this chapter, we will examine conditions that may promote and hinder digital *samhandling* between teachers and students, and discuss whether digital *samhandling* requires a new form of pedagogy, which, to a greater extent than before, takes into account risks and unforeseen events. The risk concept is applied here to both the unwanted consequences of digital use and the uncertainty related to the extent in which learning goals are achieved with this use.

The concept of *samhandling* in education

Samhandling involves a meeting between individuals where learning and development are central. A meta-analysis of the concept of *samhandling*, conducted by Torgersen and Steiro (2009), shows that the core of *samhandling* is concurrent learning and the facilitation of competence complementarity, via mutuality. *Samhandling* is a complex term that is often added diverse content in various fields, disciplines, and organizations. Nevertheless, in many contexts it is expected to be perceived intuitively. Such an approach to *samhandling* may cause misunderstandings and quandaries when individuals and organizations that meet have different understandings and views as to what *samhandling* entails. Torgersen and Steiro (2009) demonstrate how the concept of *samhandling* is used in various disciplines, industries, and institutions, and describe *samhandling* as a communication and development process in which participants exchange skills and work towards common goals. Based on various definitions of the concept of *samhandling*, they state that the relationship between participants in the process of *samhandling* is based on “[...] trust, involvement, rationality and industry knowledge” [our translation] (p. 129). This idea of *samhandling* seems to be in line with interaction processes that take place in education. According to Vygotsky (1980), the interaction between teachers (as “significant others”) and students may lead to learning and development. Vygotsky (1980) denotes the “space” between established knowledge and new insights as the *proximal development zone*; a “learning zone” that through interaction with others may become established knowledge. This is consistent with sociocultural views of knowledge that Vygotsky is often linked to, where learning takes place through social interaction within cultural contexts. Valsiner and Van der Veer (2000) perceive the sociocultural perspective as learning through social interaction and activity.

In the Official Norwegian Report NOU 2015:8 “School of the Future. Renewal of subjects and competencies” [our translation]³ (Kunnskapsdepartementet, 2015), the Norwegian Ministry of Education emphasizes that communicating, participating and *samhandling* in social contexts

3 NOU 2015:8 *Fremitidens skole. Fornylse av fag og kompetanser* (Kunnskapsdepartementet, 2015)

will be important and necessary areas of competence in schools of the future. This report discusses *samhandling* between school, education, and the public and business sectors. The importance of *samhandling*, regarding society's needs and the development of democracy, both at a local, national and global level, is strongly emphasized in the report. The report principally points out that students in schools of the future must acquire capabilities such as "*samhandling* skills, metacognition, and self-regulated learning" [our italic and translation]. With regard to *samhandling* skills, the report makes clear that students should "[...] be able to participate in various areas, express their opinions and have positive relationships with others" (p. 29). Metacognition is defined as "[...] being able to reflect on one's own thinking and learning" (p. 25), while self-regulated learning is described as follows: "[...] students learn over time to take the initiative and control parts of their learning process" (p. 27) [our translations]. These learning objectives show that future education will be required to enable students to learn how to acquire knowledge through *samhandling*. In order to do so, students should acquire knowledge about *samhandling*⁴ (Kunnskapsdepartementet, 2015:29). Thus, teachers need to gain more insight in how to teach *samhandling* at school.

For various reasons, digital *samhandling* in education may be even more challenging to conduct and teach than face-to-face *samhandling*. Digital *samhandling* is a communication form mediated through technology. In education, the objective of such a practice is for pupils and teachers to acquire digital literacy as a tool for constructing further insights (Kunnskapsdepartementet, 2008, 2015; Uninett-ABC, 2006). The challenge with these goals is as follows: Digital *samhandling* is still a relatively new and untested phenomenon in education, and there are various factors – inside and outside of school – which both promote and inhibit the use of digital means of *samhandling* between teachers and students. As a result of encountering various obstacles, teachers use *samhandling* technology to a greater extent for administrative purposes rather than academic ones (Egeberg et al., 2012; Furnes, 2015; Hatlevik, Tømte, Skaug, &

4 Refers to the Norwegian term '*samhandlingskompetanse*' (*samhandling* competency, a comprehension of *samhandling* as a literacy that may facilitate people's ability to participate and express their opinions in democratic societies (Kunnskapsdepartementet, 2015).

Ottestad, 2011; Kunnskapsdepartementet, 2008). The Norwegian Ministry of Education (Kunnskapsdepartementet, 2008) concludes that despite the fact that the use of new technology has increased greatly at Norwegian institutions, information and communication technology (ICT) has had more influence and application in administrative services and functions than on the educational content (ibid:32). This means that digital *samhandling* that takes place between teachers and students is primarily of an administrative nature (e.g. submission of tasks, registration of absence and grades) rather than learning and development in the form of *samhandling* (e.g. project work and educational forums) (Furnes, 2015).

Learning management systems and *samhandling* in education

How should digital *samhandling* platforms be used for educational purposes? To address this question, we will take a closer look at the use of Learning Management Systems (LMS) in education, a technology that has been implemented in the Norwegian school system. As a part of community development in the late 1990s, the Norwegian government promoted digital *samhandling* between educational institutions and students via LMS, which are web-based systems that are developed to facilitate knowledge exchange, communication, support for learning activities and the management of such activities (Uninett-ABC, 2006). Important goals for the implementation of LMS were also to increase digital literacy among teachers and students, and make school more accessible to students (and their parents or guardians, in addition) (Kunnskapsdepartementet, 2008; Uninett-ABC, 2006). According to the Norwegian Education Directorate (Udir), LMS has had an important role in education as a “catalyst” for digital literacy in education (Utdanningsdirektoratet, 2006b). Despite these goals and visions, LMS did not become the arena for *samhandling* that one had hoped for and expected. On the contrary, this technology has been used primarily for administrative purposes rather than educational ones.

To understand why LMS has not been able to meet expectations as a catalyst for digital literacy, it may be useful to examine factors that influence its use in education. Often, various factors may have implications for

human actions (Foucault, 1972). Schools and education are no exceptions, as they are influenced by conditions both inside and outside of school. If we go to Krüger (2000), in the extension of Popkewitz (1991) and Foucault (1999), teaching is viewed as an “ensemble of discursive practices.” Krüger (ibid.) states that standards, rules and “styles of reasoning” may influence teaching strategies. The use of LMS may be seen in light of these ideas. Several factors may affect how this technology is being employed in educational institutions. For example, i) the interaction between the government authorities and educational institutions concerning LMS; ii) teachers’ and pupils’ perceptions of LMS; iii) functionality and user-friendliness of various brands and types of LMS; iv) how (class) leadership is accomplished on LMS; and v) which risk factors digital *samhandling* in education presents. These factors provide possible explanations for the practice of LMS, but there may also be other explanations as to why LMS has not become the arena for *samhandling* that the government authorities and the educational sector had hoped for. Let us look at each of these factors.

(i) The interaction between the authorities and educational institutions

Policy documents concerning LMS have been published to express the Norwegian government’s intentions of implementing this technology in the education sector (Uninett-ABC, 2006; Utdanningsdirektoratet, 2006b). However, the interaction between the government authorities and school seems to have been challenging, which has led to the failure of LMS technology to gain the role it was intended to have – as a catalyst for digital literacy (Håland & Strømme, 2009; Utdanningsdirektoratet, 2006b). A research study of 96 teachers in elementary schools in Bergen (western Norway) in 2015 shows that LMS is perceived to be an administrative tool rather than an educational one. Several respondents said that if LMS had been more intuitive, it may possibly have been used for educational uses to a greater extent. As LMS technology is today, and with the lack of sufficient time at school to explore it, one does not have the opportunity to reveal educational possibilities that may lie in the technology. Furthermore, respondents say that since the administrative

functions of LMS are embedded and compulsory to use, LMS is more widely-used as an administrative tool than an educational one. If LMS is to be used pedagogically, it is up to the teachers themselves to develop it. This is something that many teachers experience as challenging and time-consuming (Furnes, 2015). Despite the fact that the authorities promote LMS as a catalyst for digital literacy in education, a majority of the teachers in the study express that the technology is primarily used for administrative purposes.

There seems to be dissent regarding *what* LMS is. Some describe this technology as an “empty shell” which must be filled with educational content to become an educational tool (e.g. Coates, James, & Baldwin, 2005; Haug, 2012). Also, the use of the term “catalyst” by the government in relation to LMS has been criticized, as one which primarily emphasizes the administrative functions of the technology and not the educational ones (e.g. Håland & Strømme, 2009). When the authorities and the educational sector have not appeared to agree on whether LMS is an educational or an administrative tool, this has sent ambiguous signals to schools, which may have resulted in teachers using LMS mainly for administrative purposes.

The Norwegian government expresses its intentions to the educational sector through policy documents. These documents often contain both political visions and guidelines and may be subject to different interpretations out in the field, which results in a variety of practices. Theorists who are concerned with the relationship between theory and practice in education state that different uses of terms and concepts in these two areas may cause communicational challenges and have implications for practice and praxis (e.g. Carr & Kemmis, 2003; Krüger, 2001; Kvernbekk, 2012; Popkewitz, 1991). This is possibly a factor that has had implications for how LMS has been used for *samhandling* in education. How teachers interpret the authorities’ intentions may affect the digital *samhandling* that occurs using LMS. In conclusion, if the government wants LMS to be primarily used for educational *samhandling*, they should focus more on scientific questions such as “what, how and why”, rather than emphasizing administrative features and political visions which contribute to undermining LMS’s educational potential.

(ii) Digital *samhandling* between teachers and students

Teachers and students have interacted digitally to varying degrees since the 1990s. Studies show that LMS technology is mainly used for administrative purposes (such as submission of tasks, registration of absence and grades) and to a lesser degree, for educational purposes (such as peer-learning, knowledge development and exchange of knowledge) (eg Egeberg et al., 2012; Furnes, 2015; Hatlevik et al., 2011; Håland & Strømme, 2009; Kunnskapsdepartementet, 2008). A probable reason for this practice is that digital *samhandling* for educational purposes is a relatively new phenomenon in education, and there is a limited amount of research on the subject. Also, due to facing unforeseen events while interacting in new ways, one may fail to work on achieving learning goals systematically. New insights may not be the products of good planning and systematic learning. Sometimes one has to gain insights ‘along the way’ during the learning process (Norwegian: ‘underveislæring’). According to Steiro and Torgersen (2015), knowledge may not always be developed prior to *samhandling*; it must also be developed during processes of *samhandling*, through individuals and institutions gaining experience and knowledge from each other. In the school context, teachers and students who interact using LMS may become participants in “communities of practice,” where they can construct new knowledge during *samhandling*. Lave and Wenger (2003) argue that “communities of practice” may be used for learning when both the road and probably the end station are unknown. This approach to knowledge construction aims to prepare individuals for encountering the unknown and the unforeseen. Steiro and Torgersen (2015) argue that since we do not know the unforeseen, we cannot “tailor” an education in advance, but that does not mean that one cannot learn along the way.

(iii) Functionality and user-friendliness of different types of LMS

Various types and brands of LMS have built-in functions for administrative purposes, while the educational features are often open to

development and adaptation. The latter is in line with the idea that teachers should have autonomy in regard to teaching methods, which is deeply rooted in the teaching profession. However, studies conducted on LMS's functionality and user-friendliness show that different types of LMS may vary in features and interfaces, and may be experienced as user-friendly to various degrees (e.g. Baltzersen, Tolsby, & Røising, 2007; Nordseth, 2006). The study mentioned previously which examined teachers' use of LMS in Bergen, concludes that if teachers perceive LMS as 'empty shells,' time-consuming, unintuitive and/or old-fashioned, the technology will primarily be used for administrative purposes, and to a limited extent for educational purposes (Furnes, 2015). The paradox here is that the opportunities for development and adaptation that the designers of LMS have opened up for in the technology, have resulted in teachers exercising their autonomy to choose not to use LMS as an educational tool.

(iv) How to enable (class) management and *samhandling* with LMS

Digital *samhandling* and class management with LMS can be challenging. According to Torgersen and Steiro (2009), there are often expectations that communication through digital platforms may be transferred directly from the type of *samhandling* that occurs face-to-face. However, since digital *samhandling* processes take place in areas that do not have an instant self-written core or centerpiece, such as a physical encounter, digital communication may be more complicated than meeting physically (ibid:151). Several challenges may apply, since digital *samhandling* places greater demands on participants' activity and reception. Digital *samhandling* may change the power structures so that teachers' authority may be undermined. Also, digital *samhandling* requires necessary skills for utilizing the technology. Moreover, both teachers and students must find their places and fulfill their roles online, as they do face-to-face. The question is, how should these roles be managed in the unforeseen future, especially when *samhandling* is becoming increasingly digital?

Class management is becoming more and more complex, and even the authorities seem to be uncertain of the implications for education. In the government report, NOU 2015:8 “School of the Future” (Kunnskapsdepartementet, 2015) [our translation],⁵ the term “class management” is only mentioned twice, without a sufficient discussion as to how this specifically may be implemented in schools of the future. If teachers experience difficulties leading classes online with the result that they refrain from using LMS for educational purposes, the technology may lose its relevance. Torgersen and Steiro (2009:151) believe that leaders on virtual *samhandling* platforms should be active contributors. The reason for this has two sides; to draw both attention to and influence the development of learning. In a school context, by aiding pupils and using *samhandling* for facilitating learning activities, the teacher is visible and clear on LMS. Hatlevik et al. (2011) conclude that when teachers are active on LMS, students use it more often. For students to perceive LMS as a relevant and dynamic tool, teachers should prioritize activity and *samhandling*. It is important that teachers have appropriate skills in leading classes in virtual environments and that they reflect on the didactics (Didaktik)⁶ concerning the “what, why and how” in relation to LMS. At the same time, students should also be given the opportunity to influence their academic progress, in accordance with the Norwegian Curriculum (Utdanningsdirektoratet, 2006a).

When teachers use LMS primarily for submission of tasks, registration of absence and grades, and to a lesser extent for professional development, they send a signal as to the technology’s suitability. This practice may have negative implications for students’ perceptions of LMS as *samhandling* technology, i.e. using this technology for the construction of knowledge through *samhandling*.

5 NOU 2015:8 *Fremtidens skole. Fornyelse av fag og kompetanser* (Kunnskapsdepartementet, 2015)

6 The term “didactics” is not in frequent use in the Anglo-American world. It is though within the framework of Nordic and German research traditions concerning the theory of education and instruction, i.e. Didaktik (Uljens, 1997, p. vii).

(v) Which risk factors may digital *samhandling* at school present?

Digital *samhandling* in education is a relatively new phenomenon, and there is a high level of uncertainty as to whether this type of *samhandling* can replace or complement traditional *samhandling*. Moreover, digital *samhandling* can be associated with various risk factors, a fact which can provide a possible explanation as to why teachers may refrain from encouraging students to interact with each other digitally during and after school. We can examine several risk factors here that may apply during digital *samhandling* in education and otherwise in society. Firstly, risk factors may be exposure, digital terrorism, and networking regarding learning processes and online interaction. In addition, ‘fake news’, ‘bots’ (robots) and ‘troll factories’ are used to control public opinion and distort conversations online. Other consequences may be unwanted digital surveillance, the use of false identities and hacking, as well as propaganda and indoctrination, for example in the form of a political manifesto (Torgersen & Saeverot, 2012). These factors can, at worst, undermine opportunities for digital *samhandling* that promote trust and involvement. Such mechanisms are threats to knowledge as we have known it, and they are threats to democracy. Digital *samhandling* that aims to hurt others may be both visible and concealed. It can be visible in the form of messages and images, making it relatively easy to document, although it is not always easy to identify the individuals behind it. The more hidden variant may be excluding people from shared messages and events by either not informing them or misinforming them. This type of *samhandling* is more challenging to detect and may affect both children and adults. Once discovered, this may cause excluded individuals to experience the betrayal of several others in addition to those who have actively excluded them. Exclusion may also be unintentional, when people fail to master the technology adequately or do not have access to digital *samhandling* platforms. This may prevent them from participating in the *samhandling* that occurs, resulting in exclusion. These are factors that teachers must take into consideration to avoid exclusion of already-marginalized student groups. It should be added that self-exclusion may also occur, when individuals opt out of membership in digital *samhandling*

platforms or just fail to attend. This type of decision is made, for example, when people want to make a point about not wanting to participate, or do not want to be associated with various *samhandling* platforms. Refraining from *samhandling* and participation signalizes a point of view. In our understanding, where digital *samhandling* with reciprocity is facilitated, it is possible to create social, technical mechanisms that prevent reciprocity, thus hindering *samhandling*.

Another risk that may occur to a greater extent than before, is linked to knowledge and how it is perceived in the digital age. While knowledge is known to be constructed by interaction (Dewey, 1916; Vygotsky, 1980), it may nowadays be seen as something that can be found online, rather than being constructed and developed. This may pose a threat to “knowledge society” in an unforeseen age, where solutions to as yet unknown problems will need to be created (Kunnskapsdepartementet, 2014–2015, 2015, 2016–2017; Torgersen, 2015). In education, a risk factor might be that students follow knowledge structures found on the Internet and search engines, rather than constructing knowledge by themselves and through *samhandling* with others. The knowledge gained through search engines may be designed by various parties, promoting their own interests and agendas. This type of knowledge may potentially have definitional power and shape how the younger generation understands and constructs knowledge. Other risk factors are “unintentional learning,” which may differ from the curriculum. Digital *samhandling* might lead to knowledge being constructed and/or shared with parties who have different motives and insights than the intentions of the school curriculum. The question is whether this should be seen as an advantage or a disadvantage for learning. This, in turn, raises the question of the need for control versus freedom when it comes to using digital and social media for *samhandling* and learning. At the same time, it is important that young people learn to be critical, so that they may “travel” safely online and construct knowledge with others through digital *samhandling*.

Finally, digital *samhandling* may eventually replace the need for direct *samhandling* with other people. This risk can be associated with insufficient, face-to-face social interaction. Our society is built on sociocultural ideas that promote socializing, learning and development through

interaction with other people (Dewey, 1916; Dysthe, 2001; Vygotsky, 1980). Replacing that with digital *samhandling* may threaten these ideas. The question is whether digital *samhandling* should be regarded as a real threat to direct *samhandling*, or whether it should be seen as an extension and a strengthening of direct *samhandling*. Either way, this is an important topic that should be addressed further in the discussion about digital *samhandling*.

To sum up, digital *samhandling* may present education with uncertainty and ethical dilemmas regarding students' safety. This may be a potential explanation as to teachers' hesitation to make use of new technology. Skagen Ekeli (2002) believes that there is a high level of uncertainty as to whether our decisions and activities may harm future generations' interests and living conditions, and he wonders to what extent we can be held responsible for risky activities that can harm generations to come. If we transfer this idea to the use of *samhandling* technology in education, it may be potentially harmful to children and young people, but also to teachers and other parties who interact digitally. This may be due to the risk factors mentioned earlier in this chapter, but perhaps also due to the lack of *samhandling* skills and legislation governing digital *samhandling*. Thus, school activities that are intended to promote knowledge development and exchange of knowledge may potentially harm future generations' interests and living conditions. This is a risk that should be delimited through the use of safer platforms for digital *samhandling* and the development of *samhandling* literacy at school and in the community.

Does digital *samhandling* in education require a new pedagogy?

When teachers and students use *samhandling* technology instead of face-to-face *samhandling*, it is possible that the terms of *samhandling* change, hence influencing the results. This makes demands on teachers to reflect upon how digital *samhandling* should be organized and how to manage their roles as class leaders in a virtual environment. By changing the premises for interaction, one may affect the interaction and communication itself, both regarding opportunities and challenges (e.g. Habermas, 1999;

Hellesnes, 1988). Also, new methods of *samhandling* may cause established knowledge to fall short, requiring teachers to investigate whether, and if so how, such methods may fit into the future school in “the unforeseen age.” Torgersen and Saeverot (2015) argue that the unforeseen age requires a new pedagogy. To encourage learning in a new and unknown future, one should, according to Torgersen and Saeverot (*ibid.*), explore and challenge traditional knowledge, educational models and learning by experience. Kvernbekk (2015) points out that such ideas of learning contradict traditional ideas of predictability regarding aspects such as achievement, including evidence-based research on “what works” (evidence-based knowledge). Biesta (2007) problematizes the “what works” approach to learning, and emphasizes that what works may vary in different situations. He argues that teachers’ professional judgment should be the basis for their decisions, in combination with evidence-based knowledge, practical experience and common sense (*phronesis*). As the future school seems to be all the more unpredictable, it is quite logical to assume that improvisation should also be a form of action in education (Weller, 2015). At the same time, improvisation, for example through digital *samhandling*, may pose risks for learners, as we do not know the consequences of it. The fear of potential risks with digital *samhandling* may explain why teachers’ refrain from using it. However, if teachers refrain from facilitating digital *samhandling*, this may present a threat to the “knowledge society” in the unforeseen age. This is due to society’s need for *samhandling* through various platforms that may enable creativity and problem-solving of as yet unknown issues in the future.

The discussion so far about digital *samhandling* in education in the unforeseen age shows that teachers are vital as class leaders, also in virtual environments. However, they should participate in developing their roles as class leaders in the unforeseen age. This imposes demands on teachers’ professionalism, *samhandling* literacy, adaptability, and judgment. Also, educators and educational researchers should develop new approaches to learning, that can open up for the construction of new insights rather than primarily enabling the mediation of established knowledge. Torgersen and Saeverot (2015) suggest that a new approach to learning can be *indirect*; an approach which opens up to new insights to a greater extent

(see also Saeverot, 2013; Saeverot, 2017). Indirect pedagogy enforces more student reflection, rather than seeking established knowledge (Saeverot, 2017). Since digital *samhandling* is mediated through digital tools, it is an indirect form of communication that is also consistent with indirect forms of pedagogy.

Conclusion – strategies for better digital *samhandling* in education

So far, we have discussed several factors that may influence the basis of the digital *samhandling* that takes place in education. Firstly, guidance by the authorities should be clearer and more informative. Secondly, teachers should be professionally acquainted with digital *samhandling* platforms, as well as exploring their educational potential. Gaining digital literacy may enable teachers to act as class leaders while using digital *samhandling* tools. Also, such capabilities may facilitate the creation of better learning environments for both students and teachers. Thirdly, digital *samhandling* platforms that are perceived by their users as safe, dynamic and flexible, rather than restrictive and rigid, are used to a greater extent for educational purposes.

An important aspect of using digital *samhandling* tools in education is linked to reflection and learning during the teaching process. Despite the fact that teachers and students participate in various digital *samhandling* arenas daily, both socially and professionally, many are still relatively inexperienced in using such tools for educational purposes. The objectives of this form of *samhandling* are different in the various contexts, and therefore, so are the results. Moreover, both teachers and students depend on learning along the way, and this process should take place through reflection and continual *samhandling* – which may in turn enable the development of digital *samhandling* literacy and new insights.

As the future is unknown, and the unforeseen is partly learned through teachers' professional judgment and in practice communities with students, “new” pedagogy need not necessarily consist of more educational models and theories of “what works.” Perhaps the “new” pedagogy should be, to a greater extent, based on *samhandling* literacy and problem-based learning?

References

- Baltzersen, R. K., Tolsby, H., & Røising, H. S. (2007). *Iboende pedagogikk eller "black box"?: En pedagogisk analyse av 3 læringsplattformer med utgangspunkt i deres tekniske arkitektur* (8278252122). Retrieved from Østfold December 15, 2014 <https://brage.bibsys.no/xmlui/bitstream/handle/11250/147634/hefte5-07.pdf?sequence=1>
- Biesta, G. (2007). Why "what works" won't work: Evidence-based practice and the democratic deficit in educational research. *Educational Theory*, 57(1), 1–22.
- Biesta, G. (2011). Disciplines and theory in the academic study of education: A comparative analysis of the Anglo-American and Continental construction of the field. *Pedagogy, Culture & Society*, 19(2), 175–192.
- Carr, W., & Kemmis, S. (2003). *Becoming Critical: Education Knowledge and Action Research*: Routledge.
- Coates, H., James, R., & Baldwin, G. (2005). A critical examination of the effects of learning management systems on university teaching and learning. *Tertiary Education and Management*, 11(1), 19–36. doi:10.1080/13583883.2005.9967137
- Dewey, J. (1916). *Democracy and education*. In: Macmillan Press Limited.
- Dysthe, O. (2001). Sosiokulturelle teoriperspektiv på kunnskap og læring. *Dialog, samspel og læring*, 33–72.
- Egeberg, G., Gudmundsdottir, G. B., Hatlevik, O. E., Ottestad, G., Skaug, J. H., & Tømte, K. (2012). Monitor 2011. *Skolens digitale tilstand [The Digital State of Affairs in Norwegian Schools]*. Oslo: The Norwegian centre for ICT in Education.
- Foucault, M. (1972). *The Archaeology of Knowledge* (A.M. Sheridan Smith, trans.). New York: Pantheon Books.
- Foucault, M. (1999). *Viljen til viten* (Vol. 1). [Oslo]: EXIL.
- Furnes, G. H. (2015). *Ordenes makt – En studie av dialogen mellom teori- og praksisfeltet i relasjon til digitale læringsplattformer [The impact of words – A study of the dialogue between theory and practice in relation to Learning Management Systems]*. (A Master's thesis), Western Norway University of Applied Sciences (HVL), Bergen. Retrieved from <https://brage.bibsys.no/xmlui/handle/11250/2481520> CRIStin database.
- Habermas, J. (1999). Handlinger, talehandling, språklig formidlet *samhandling* og livsverden. In J. Habermas & R. Kalleberg (Eds.). *Kraften i de bedre argumenter* (pp. 137–171). Oslo: Ad notam Gyldendal.
- Hatlevik, O. E., Tømte, K., Skaug, J. H., & Ottestad, G. (2011). Monitor 2010. *Samtaler om IKT i skolen [Dialog on information technology in schools]: The Norwegian Centre for ICT in Education*.
- Haug, K. H. (2012). Digitale læringsplattformer (LMS) : støttende stillas – eller? In A. M. Otterstad & N. Rossholt (Eds.), *Barnehagelærer-utdanningens kompleksitet* (pp. 231–250). Oslo: Universitetsforlaget.

- Hellesnes, J. (1988). Den galne grisen hans Lars Liabø og dei tre verdene hans Jürgen Habermas, eller om formalpragmatikkens grunnlag. *Grunnane: Aschehoug*, 93–115.
- Håland, E., & Strømme, A. (2009). "LMS i fremtidens læringsmiljø" – Pedagogisk bruk av LMS og læreres didaktiske utfordringer. Retrieved from www.itu.no
- Krüger, T. (2000). *Teacher practice, pedagogical discourses and the construction of knowledge: two case studies of teachers at work* (Vol. no. 1/2000). Bergen: Høgskolen.
- Krüger, T. (2001). Spenningen mellom utdanningsforskning og lærerpraksis. *Norsk Pedagogisk Tidsskrift*, 1, 68–84.
- Kunnskapsdepartementet. (2008). *NOU 2008:3 Sett under ett*. Retrieved from <http://www.regjeringen.no/nb/dep/kd/dok/nouer/2008/NOU-2008-3/6/3.html?id=497204>.
- Kunnskapsdepartementet. (2014–2015). *Meld. St. 18 (2014–2015) Konsentrasjon for kvalitet. Strukturreform i universitets- og høyskolesektoren*. Retrieved from <https://www.regjeringen.no/contentassets/86d1e31e78b44de6a3a15e913b092bf4/no/pdfs/stm20142015001800odddpdfs.pdf>.
- Kunnskapsdepartementet. (2015). *NOU 2015:8 Fremtidens skole. Fornyelser av fag og kompetanser*. Oslo Retrieved from <https://www.regjeringen.no/no/dokumenter/nou-2015-8/id2417001/>.
- Kunnskapsdepartementet. (2016–2017). *Meld. st. 16 (2016–2017) Kultur for kvalitet i høyere utdanning*. Retrieved from <https://www.regjeringen.no/contentassets/aee30e4b7d3241d5bd89db69fe38f7ba/no/pdfs/stm20162017001600odddpdfs.pdf>.
- Kvernbekk, T. (2012). Argumentation in Theory and Practice: Gap or Equilibrium? *Informal logic*, 32(3), 288–305.
- Kvernbekk, T. (2015). Om planlegging, predikerbarhet og tilfeldighet. In G.-E. Torgersen (Ed.), *Pedagogikk for det uforutsette* (pp. 74–88). Bergen: Fagbokforl.
- Lave, J., & Wenger, E. (2003). *Situert læring – og andre tekster*. København: Reitzel.
- Nordseth, H. (2006). Hvordan måle egnethet ved digitale læringsplattformer? In M. Stene (Ed.), *Kunnskap til Begjær – et utvalg nordtrøndersk forskning* (pp. 52): Sekretariatet for forskningsdagene 2006 Nord-Trøndelag.
- Popkewitz, T. S. (1991). *A Political Sociology of Educational Reform: Power/Knowledge in Teaching, Teacher Education, and Research*. New York: Teachers College Press.
- Saeverot, H. (2013). *Indirect Pedagogy: Some Lessons in Existential Education* (Vol. 58): Springer Science & Business Media.
- Saeverot, H., & Biesta, G. (2013). On the need to ask educational questions about education: An interview with Gert Biesta. *Policy Futures in Education*, 11(2), 175–184.
- Skagen Ekeli, K. (2002). Risiko, usikkerhet og intergenerasjonell etikk. *Norsk filosofisk tidsskrift*, 37(04), 241–260.

- Steiro, T. J., & Torgersen, G. E. (2015). *Samhandling* og underveisl ring i m te med det uforutsette. In G. E. Torgersen (Ed.). *Pedagogikk for det uforutsette* (pp. 224–231). Bergen: Fagbokforlaget.
- Saeverot, H. (2017). *Pedagogikkvitenskap* Oslo: Fagbookforlaget.
- Torgersen, G.-E. (2015). *Pedagogikk for det uforutsette*. Bergen: Fagbokforlaget.
- Torgersen, G.-E., & Steiro, T. (2009). *Samhandling*: “Keiserens nye kl r” eller nytt begrepsinnhold? In G. E. Torgersen & T. I. Steiro (Eds.). *Ledelse, samhandling og oppl ring i fleksible organisasjoner—en menneskeliggj ring av styringssystemer. 1. utgave, 1. opplag* (pp. 120–166). Stj rdal: L ringsforlaget.
- Torgersen, G.-E., & Steiro, T. (2018). Defining the Term *Samhandling*. In G.-E. Torgersen (Ed.), *Interaction: ‘Samhandling’ Under Risk. A Step Ahead of the Unforeseen*. Oslo: Cappelen Damm Akademisk. DOI: <https://doi.org/10.23865/noasp.36.ch2>
- Torgersen, G.-E., & Saeverot, H. (2012). Danningens nye ansikt i risikosamfunnet – digital vekking mot virtuell terrorisme. *Norsk filosofisk tidsskrift*, 47(03), 170–179.
- Torgersen, G.-E., & Saeverot, H. (2015). Ny pedagogikk for det uforutsettes tidsalder? In G.-E. Torgersen (Ed.), *Pedagogikk for det uforutsette* (pp. 18–27). Bergen: Fagbokforlaget.
- Uljens, M. (1997). *School didactics and learning: A school didactic model framing an analysis of pedagogical implications of learning theory*. Psychology Press.
- Uninett-ABC. (2006). LMS – hva og hvordan. In (pp. 23 s.: fig.). [Trondheim]: Uninett ABC.
- Utdanningsdirektoratet. (2006a). Den Generelle delen av L replanen. Retrieved from http://www.udir.no/upload/larerplaner/generell_del/generell_del_lareplanen_bm.pdf
- Utdanningsdirektoratet. (2006b). *Digitale L ringsplattformer – en mulig katalysator for digital kompetanse i grunnoppl ringen*. Retrieved from <http://www.udir.no/Upload/Rapporter/5/LMS.pdf?epslanguage=no>.
- Valsiner, J., & Van der Veer, R. (2000). *The Social Mind: Construction of the Idea*. Cambridge University Press.
- Vygotsky, L. S. (1980). *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press.
- Werler, T. (2015). Refleksiv Improvisasjon: Undervisning og det uforutsette. In G.-E. Torgersen (Ed.). *Pedagogikk for det uforutsette* (pp. 283–296). Bergen: Fagbokforlaget.

